PERSONNEL RESEARCH DIGEST

PRS

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The Incorporation of Retirement Loss Estimates in the Personnel Planning Process

INTRODUCTION

The logistics of personnel planning require that we have available useful information on the numbers and kinds of people that we will need in the future to operate our organizations. This information is most useful when it is available sufficiently in advance of the specific need to enable the organization to do an effective job of obtaining and of developing the right kinds of people. Otherwise, we are at the mercy of the supply and demand that chance provides at the moment that our requirements for personnel become immediate.

The recognition of the value of long range planning of this sort is reflected in the recent issuance (November, 1964) of the U. S. Civil Service Commission entitled "Federal Workforce Outlook: Fiscal Years 1965-1968".

Retirement losses represent one considerable component involved in estimating future personnel needs in an ongoing organization and in planning replenishment. Reported here are some techniques for collecting and analyzing information to estimate future retirement losses in a more systematic fashion than is commonly applied.

WHAT WE DID

From the monthly reports of retirement submitted to the Office of Personnel by the USDA agencies, items of information pertaining to age and number of years of service were obtained on 2,465 persons who were optional or mandatory General Service (GS) retirees between January 1961 and March 1964.

A Retirement Index (RI) was formed for each retiree:

Retirement Index = Age + Years of Service.

We then made analyses to answer these three questions:

(1) Are there variations from year to year on the Retirement Index?

(2) Are there differences among the agencies in their average Retirement Index?

(3) Are there differences among the agencies in their retirement rates?

WHAT WE FOUND

These analyses showed that:

(1) There were no appreciable variations from year to year on the Retirement Index;

(2) There were no appreciable differences among the agencies in their retirement rates and;

(3) The Agricultural Research Service (ARS) and the Agricultural Stabilization and Conservation Service (ASCS) differed from the other agencies on their average Retirement Index. However, simply by subtracting a constant of 5 for ARS, and adding a 5 for ASCS, the RI for all agencies could be used in the same way to establish practically useful estimates of future retirements.

WHAT WE DEVELOPED FROM THE RESULTS

We then developed a Retirement Probability Table. This Probability Table (Exhibit 1) starts at the low end of the RI scale and gives cumulative percentages of retirees for the selected scale values.

Exhibit 1 can be read by entering the first column with a person's RI value. The numerical values in each row indicate the chances in 100 that he will retire in the number of years specified. As an example, take a person who has an RI value of 66. There is 1 chance in 100 that he will retire in the coming year, 4 chances in 100 that he will retire within 3 years, 9 chances in 100 within 5 years, etc.

These values for future years are obtained by projecting the current retirement probabilities. Thus, for every year in the future, one's RI increases by 2 (1 for a year of age, and 1 for a year of service). These projections assume that the retirement probabilities will remain about the same. Annual or biennial checks can be made to find out if any substantial changes do occur. When changes occur, new rates can be easily computed.

Exhibit I

Retirement Probability Table
Probability of Retirement in ___ Years

Current RI Value*	1	3	5	8	10	15	20	25	30
21-25	0	0	0	0	0	0	0	4	21
26-30	0	0	0	0	0	0	1	9	45
31-35	0	0	0	0	0	0	4	21	66
36-40	0	0	0	0	0	1	9	45	83
41-45	0	0	0	0	0	4	21	66	91
46-50	0	0	0	0	1	9	45	83	96
51-55	0	0	0	1	4	21	66	91	99
56-60	0	0	1	4	9	45	83	96	100
61-65	0	1	4	9	21	66	91	99	100
66-70	1	4	9	21	45	83	96	100	100
71-75	4	9	21	45	66	91	99	100	100
76-80	9	21	45	66	83	96	100	100	100
81-85	21	45	66	83	91	99	100	100	100
86-90	45	66	83	91	96	100	100	100	100
91-95	66	83	91	96	99	100	100	100	100
96-100	83	91	96	99	100	100	100	100	100
101-105	91	96	99	100	100	100	100	100	100
106-110	96	99	100	100	100	100	100	100	100
111-115	99	100	100	100	100	100	100	100	100
116 or Greater	100	100	100	100	100	100	100	100	100

*ARS subtract 5 from index value before reading into the table.
ASCS add 5 to index value before reading into the table.
Current RI value equals age plus years of service.

HOW THE RESULTS CAN BE APPLIED

To demonstrate one possible application of the Retirement Index some information on age, years of service, and GS level of a sample of current ARS employees was analyzed. A breakdown by GS level and RI values was obtained and expected losses for 3, 5 and 10 years were computed. The results of this analysis are presented graphically in Exhibit 2. This graph shows that approximately:

(1) 13% of the GS-15's, 25% of the GS-14's, 26% of the GS-13's, 10% of the GS-12's, and 10% of the GS-11's will retire during the next 5 years;

(2) 30% of the GS-15's, 47% of the GS-14's, 48% of the GS-13's, 21% of the GS-12's, and 18% of the GS-11's will retire during the next 10 years.

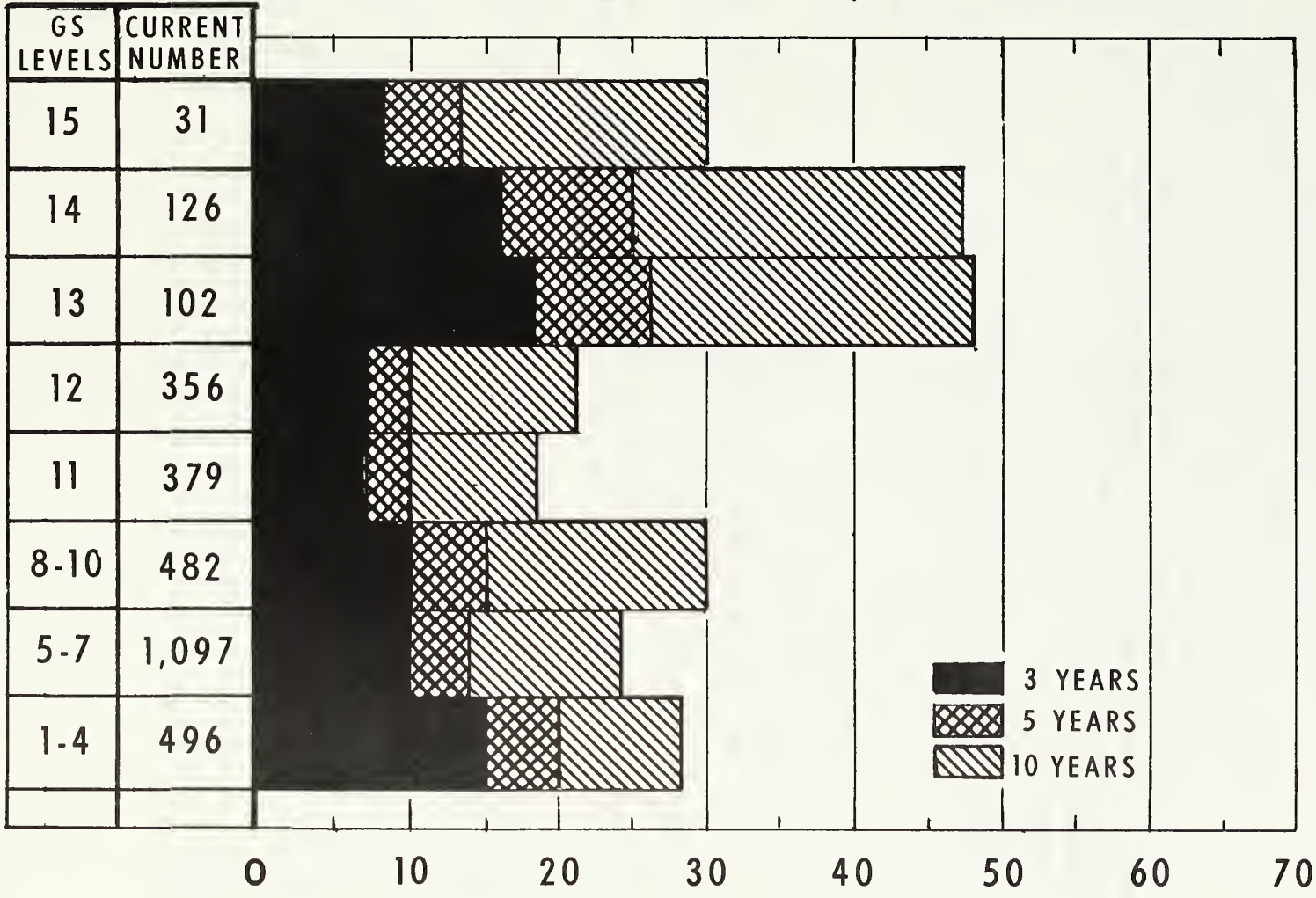
These results can be integrated with certain assumptions about the effects of program changes on the numbers of employees. Let us assume that the programs involving these employees will remain relatively stable and that losses will be replenished from the next lower GS level. Then the expected losses for each level will indicate the number of promotions that will have to be made. Also, the total of losses will indicate the number of new hires that will be needed at the entry level. An example is listed below.

GS Level	Current Number	Expected Number Loss for Next 3 Years	Promotion Likelihood
15	31	3	-
14	126	20	2:100
13	102	18	22:100
12	356	25	12:100
11	379	27	17:100
8-10	482	48	19:100
5-7	1097	111	13:100
1-4	496	76	-

In this example, let us assume that replenishments are made from the next lower GS level for GS-5's and above. This means that there will be:

EXHIBIT 2

PERCENTAGE LOSSES EXPECTED IN 3, 5 AND 10 YEARS



(1) 3 GS-14's promoted to GS-15 to replace those retiring GS-15's,

(2) 20 GS-13's promoted to GS-14 to replace those retiring GS-14's, plus 3 GS-13's promoted to GS-14 to replace those promoted to GS-15.

A total of 23 GS-13's will have to be promoted to replenish losses due to retirement and promotion. One can see that the losses are pushed down to the next lower level, so that the number needed at the 5 to 7 level will be the sum of all the losses for GS-5 and above (viz. 3+20+18+25+27+48+111 = 252). Thus, a total of 252 entry level employees will be needed during this period.

The column labeled "Promotion Likelihood" gives the chances in 100 of a person at a given grade level being promoted during the next 3 years. These figures were obtained by dividing the replenishment needs above that grade level by the current number of people in that grade level. Thus, the chances of promotion for a GS-14 during the next 3 years are very slight, but there are 22 chances in 100 that a GS-13 will be promoted, while only 12 in 100 that a GS-12 will be promoted during this period. Similar calculations could be made for a 5 and 10 year period.

These differences in Promotion Likelihood might reflect motivational and training problems. Thus, if the Promotion Likelihood is low in a given group, the individuals concerned may have less incentive to sustain high performance or more motivation to find other employment. If the Promotion Likelihood in the near future is high, it may be taken as a signal that development plans for some individuals must be expedited.

These calculations were made under the assumption that the program would remain stable. Anticipated program expansion or contraction would alter the number at different levels and hence increase or decrease the replenishments correspondingly.

Although these examples are grossly simplified, when the computer aspect of the Management of Human Resources (MOHR) becomes operational, it will be a simple matter to perform more refined and complex analyses and accumulate historical data for specific occupational groups. Retirement loss estimates can be integrated with projected losses for other kinds of attrition such as voluntary quits, changes to other series, etc., so that comprehensive manpower projections can be made. Indeed, with modern computer techniques it is possible to simulate the personnel flow of an entire agency and of USDA as a whole.

SOME QUESTIONS RAISED IN USING THIS APPROACH

Will conditions change between now and the time period over which we are estimating, so that these estimations will tend to be inaccurate or even misleading? The philosophy underlying the development of a technique such as this is that it will be a useful tool in helping the manager to do a better job of planning. To accomplish this one must recognize that it is highly likely that conditions will change over the time period we are estimating but this does not invalidate the technique. As mentioned earlier an annual or biennial check can be run on the extent to which changes in retirement rates have occurred. More important, however, is that fresh projections can be made annually or biennially incorporating one's latest knowledge about the future course of events. One is, so to speak, always anticipating the future on the basis of current knowledge and expectations rather than depending upon the accuracy of a particular prophecy.

How is this an improvement over merely sorting the numbers of employees into age and years of service categories? When one reads such a table, he implicitly assumes that age and years of service predict the likelihood of retirement. This technique makes this assumption explicit and brings past experience to bear on the predicition process. Further, by allowing the planner to work with a single index of retirement it simplifies the analyses to be made and the information to be assimilated.

Can the estimates be organized in different ways? Yes, they can be organized by series, administrative units, agencies, etc.

Does this supplant such things as supervisor-supervisee pre-retirement counseling and pre-retirement planning sessions? This technique neither supplants nor renders obsolete pre-retirement counseling and planning. It may provide useful information for retirement counseling or it might even provide a yardstick against which an aspect of a particular retirement counseling program might be evaluated.

This report has shown how systematic techniques can be employed to develop and incorporate retirement loss estimates in the personnel planning process. The techniques are flexible and can be adapted to meet various agency personnel planning needs.